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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,195	12/05/2003	John J. Degnan	GSC 14,616-1	2130
21872	7590	09/06/2005	EXAMINER	
NASA GODDARD SPACE FLIGHT CENTER 8800 GREENBELT ROAD, MAIL CODE 140.1 GREENBELT, MD 20771			RATCLIFFE, LUKE D	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 09/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/730,195	<b>Applicant(s)</b> DEGNAN, JOHN J.	
	<b>Examiner</b> Luke D. Ratcliffe	<b>Art Unit</b> 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,14-21,24-26 and 28 is/are rejected.
- 7) ☒ Claim(s) 8,10-13,22,23, and 27 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a) because they fail to show the wedge angle in Figure 2, the gears are not angled and appear to be normal bevel gears, the wedge angle needs to be shown as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

Claim 28 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite in that it fails to point out what is included or excluded by the claim language. This claim is an omnibus type claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7, 14, 16, 19, 20, and 24-26 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Degnan et al (Design and Performance of an Airborne Multikilohertz Photon-Counting, Microlaser Altimeter).

Referring to claim 1 and 19 Degnan shows a light source (figure 1), a means for scanning a first and second beam (figure 1), a means for detecting the second beam (Instrument Overview), and a processor system (figure 1).

Referring to claim 2 Degnan shows a light source that is a laser (figure 1).

Referring to claims 3 and 20 Degnan shows a laser array (Instrument Overview).

Referring to claims 4 and 24 Degnan shows a laser angularly displaced (figure 1).

Referring to claims 5 and 25 Degnan shows an angular displacement means including a mirror or a prism (figure 1).

Referring to claim 6 Degnan shows an array of two-dimensional pixilated detectors (Instrument Overview).

Referring to claims 7 and 26 Degnan shows detectors that detect photons (Instrument Overview).

Referring to claim 14 Degnan shows a means for determining and controlling scan frequency (figure 1 and Instrument Overview).

Referring to claim 16 Degnan shows a light source (figure 1), a means for scanning a first and second beam (figure 1), a means for detecting the second beam (Instrument Overview), an array of two-dimensional pixilated detectors (Instrument Overview), and a processor system (figure 1).

Referring to claim 19 Degnan shows a method of imaging a contiguous map of ground including providing a laser beam (figure 1), scanning the laser beam to be transmitted (figure 1), scanning the laser beam to be received (figure 1), the transmission scanning of field of view of the surface is ahead of the reception scanning of field of view of the surface (figure 1 and instrument overview), detecting the laser beam (figure 1), and processing signals (figure 1).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 14-16, 19, 20, 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degnan et al (Design and Performance of an Airborne Multikilohertz Photon-Counting, Microlaser Altimeter) in view of Krawczyk (5726743).

Referring to claim 1 and 19 Degnan as modified shows a light source (figure 1), a means for scanning both the first and second beam wherein the transmission scanning field of view of the surface is ahead of the reception scanning of field of view of the surface (Krawczyk figure 1A), a means for detecting the second beam (Instrument Overview), and a processor system (figure 1). It would have been obvious to modify Degnan to include the scanning system used in Krawczyk because this type of system would allow a system to digitally map a surface at high altitudes and at high speeds with accuracy.

Referring to claim 2 Degnan as modified shows a light source that is a laser (figure 1).

Referring to claims 3 and 20 Degnan as modified shows a laser array (Instrument Overview).

Referring to claims 4, 5, 24, and 25 Krawczyk shows a laser that is angularly displaced by a mirror (figure 1A). It would have been obvious to modify Degnan to include the laser that is angularly displaced as taught by Krawczyk because this would allow for this type of system would allow a system to digitally map a surface at high altitudes and at high speeds with accuracy.

Referring to claim 6 Degnan as modified shows an array of two-dimensional pixilated detectors (Instrument Overview).

Referring to claims 7 and 26 Degnan as modified shows detectors that detect photons (Instrument Overview).

Referring to claim 14 Degnan as modified shows a means for determining and controlling scan frequency (figure 1 and Instrument Overview).

Referring to claim 15 Krawczyk shows a telescope (figure 1A). It would have been obvious to modify Degnan to include the telescope as taught in Krawczyk because this allows for the focusing of the received signal and the transmission of the laser with fewer parts.

Referring to claim 16 Degnan as modified shows a light source (figure 1), a means for detecting the second beam (Instrument Overview), an array of two-dimensional pixilated detectors (Instrument Overview), a processor system (figure 1). Krawczyk shows a means for scanning a first and second beam so that the field of view of the scanning of the transmitted beam is ahead of the field of view of the scanning of the received beam (figure 1A).

Referring to claim 19 Degnan shows a method of imaging a contiguous map of ground including providing a laser beam (figure 1), scanning the laser beam to be transmitted (figure 1), scanning the laser beam to be received (figure 1), , detecting the laser beam (figure 1), and processing signals (figure 1). Krawczyk shows the transmission scanning of field of view of the surface is ahead of the reception scanning of field of view of the surface (figure 1A).

Claims 9, 17, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Degnan et al (Design and Performance of an Airborne Multikilohertz Photon-Counting, Microlaser Altimeter) in view of Krawczyk (5726743) as applied to claims 1 and 19 above, and further in view of Green (4470698).

Referring to claim 9 and 21 Green shows a first and second optical wedges wherein the phases of the central portions are advanced relative to the phases of the annular portions (figure 1), and a means for counter-rotating them (column 1 and 2). It would have been obvious to modify Degnan to include the optical wedges as shown in Green because this would improve the ability of the system to scan at greater distances and at greater speeds with more accuracy.

Referring to claim 17 and 18 Degnan as modified shows a light source (figure 1), a means for detecting the second beam (Instrument Overview), an array of two-dimensional pixilated detectors (Instrument Overview), a processor system (figure 1). Krawcyk shows a means for scanning a first and second beam so that the field of view of the scanning of the transmitted beam is ahead of the field of view of the scanning of the received beam (figure 1A). Green shows a first and second optical wedges wherein the phases of the central portions are advanced relative to the phases of the annular portions (figure 1), and a means for counter-rotating them (column 1 and 2).

***Allowable Subject Matter***

Claims 8, 10-13, 22, 23, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.




If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR

LDR

  
THOMAS H. TARCZA  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 3600